

Claims

1. A transgenic plant cell wherein said plant cell is genetically modified by transformation with a nucleic acid molecule selected from the group consisting of:
 - i) a nucleic acid molecule comprising a nucleic acid sequence as represented in Figure 6a, Figure 6b or Figure 6c;
 - ii) a nucleic acid molecule which hybridises to the nucleic acid molecule as defined in (i) and which encodes a polypeptide which has the specific activity associated with an expansin;
 - iii) a nucleic acid molecule that encodes an expansin characterised by the amino acid sequence motif ASSISGGG;
 - iv) a nucleic acid molecule comprising a nucleic acid sequence which is degenerate as a result of the genetic code to the sequences defined in (i),(ii) or (iii).
2. A cell according to Claim 1 wherein said cell is adapted for the over-expression of said nucleic acid molecule.
3. A cell according to Claim 1 or 2 wherein said nucleic acid molecule hybridizes under stringent hybridisation conditions to a nucleic acid molecule as represented in Figure 6 a, b or c.
4. A cell according to any of Claims 1-3 wherein said nucleic acid molecule consists of the nucleic acid sequence represented in Figure 6 a, b or c.
5. A cell according to any of Claims 1-4 wherein said nucleic acid molecule comprises a nucleic acid sequence that has at least 60% homology to the nucleic acid sequence represented in Figure 6a, b or c.

6. A cell according to any of Claims 1-5 wherein said cell is transformed with a nucleic acid molecule which encodes an expansin polypeptide wherein said nucleic acid molecule is isolated from the genome of a resurrection plant.
7. A cell according to Claim 6 wherein said resurrection plant is of the genus *Craterostigma spp.*
8. A cell according to any of Claims 2-7 wherein said nucleic acid molecule is over-expressed at least 2-fold when compared to basal level expression.
9. A cell according to any of Claims 2-7 wherein said cell over-expresses said nucleic acid molecule at least 5-fold, 10-fold, 20-fold, 30-fold, 40-fold, or at least 50-fold.
10. A cell according to any of Claims 2-7 wherein said cell over expresses said nucleic acid molecule at least 100-fold.
11. A cell according to any of Claims 1-10 wherein said cell is transfected with a vector comprising a nucleic acid molecule selected from the group consisting of:
 - i) a nucleic acid molecule comprising a nucleic acid sequence as represented in Figure 6a, b or c;
 - ii) a nucleic acid molecule which hybridises to the nucleic acid molecule as defined in (i) and which encodes a polypeptide which has the specific activity associated with an expansin;
 - iii) a nucleic acid molecule that encodes an expansin characterised by the amino acid sequence motif ASSISGGG;
 - iv) a nucleic acid molecule comprising a nucleic acid sequence which is degenerate as a result of the genetic code to the sequences defined in (i), (ii) or (iii).
12. A plant comprising a cell according to any of Claims 1-11.

13. A product comprising a plant cell or plant tissue derived from a plant according to Claim 12.
14. A product according to Claim 13 wherein said product is a food stuff.
15. A product according to Claim 13 wherein said product is paper.
16. A method to alter the mechanical properties of a plant cell wall comprising the steps of:
 - i) providing a cell according to the invention; and
 - ii) cultivating from said cell a plant.
17. A method according to Claim 16 wherein said plant, or part thereof, is dehydrated.
18. A method to prepare a cell wall extract wherein said cell wall has altered mechanical properties comprising the steps of:
 - i) providing a cell according to the invention;
 - ii) cultivating said cell into a plant; and
 - iii) preparing a cell wall extract from said plant.
19. A method according to Claim 18 wherein said extract is dehydrated.
20. A cell wall extract prepared by the method according to Claim 18 or 19.
21. A composition comprising a polypeptide encoded by a nucleic acid molecule selected from the group consisting of:
 - i) a nucleic acid molecule comprising a nucleic acid sequence as represented in Figure 6a and/or b and/or c;

- ii) a nucleic acid molecule which hybridises to the nucleic acid molecule as defined in (i) and which encodes a polypeptide which has the specific activity associated with an expansin;
- iii) a nucleic acid molecule that encodes an expansin characterised by the amino acid sequence motif ASSISGGG;
- iv) a nucleic acid molecule comprising a nucleic acid sequence which is degenerate as a result of the genetic code to the sequences defined in (i), (ii) or (iii).

22. Use of a composition according to Claim 21 as an agent for the rehydration of dehydrated plant material.